

**A LEGACY SURVEY FOR CIRCUMBINARY COMPANIONS OF INTERMEDIATE-MASS ECLIPSING  
BINARY STARS**

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Stellar companions are commonplace among more massive stars, and these companions probably are the repository of the angular momentum of the original natal cloud. In order for star formation processes to lead to very close binary stars (with orbital periods of a few days), a distant third star may be required to carry the bulk of the angular momentum. Our goal here is to search for such companions surrounding eclipsing pairs of intermediate-mass stars (of spectral types B, A, and F). We will use the remarkably accurate light curves from the Kepler Observatory of some 41 eclipsing binaries to measure carefully the times of the eclipses. We will search for companions by investigating periodic variations in the eclipse timings caused by the light travel time across the orbital displacement of the close binary. In favorable circumstances, we will detect companions as small as brown dwarf stars and/or massive planets. We began this program in Cycle 1, and preliminary results confirm the feasibility of the research plans. This continuing program will provide an observational legacy of the orbital, pulsational, and magnetic variations among stars with the best determined physical properties in the Kepler field of view.